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**APERTURE FORMING MEANS AND PACKAGE**

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## **CROSS REFERENCE TO PRIOR APPLICATIONS**

**[0001]** This application claims the benefit of U.S. Provisional Application No. 60/399,138, filed July 30, 2002, and U.S. Provisional Application No. 60/407,010, filed August 30, 2002.

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## **FIELD OF THE INVENTION**

**[0002]** The present invention relates generally to the field of packaging. In particular, the invention relates to easy-opening, self-contained, easy to use, single or multiple use dispenser packages capable of economical, high speed production, manufactured from a broad range of materials, many of which are recyclable.

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## **BACKGROUND INFORMATION**

**[0003]** Numerous types of dispenser packages are known in the art. The invention is directed to an improved dispenser package and an improved means for forming an aperture in a dispenser package, allowing the product in the dispenser package to be dispensed.

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## **SUMMARY OF THE INVENTION**

**[0004]** Peelable seals are widely used to adhere the lids onto a variety of cup containment packages for individual portion control packaging such as coffee creamers, salad dressing, BBQ sauce, etc., by fast food servers, hospitals, etc. This application is

for a pouch style package or similar style packaging of various configurations. The packages of this application utilize similar types of peelable seal material to adhere its necessary seams to create a very easy opening pouch. In accordance with one aspect of the invention, at least one inner face of the pouch is of a peelable sealing material. These  
5 peelable seals are quite sturdy and can be made so that they withstand the pressures generated by shipping and handling.

[0005] While experimenting with a variety of plastic packaging films, some being coextruded with multiple layers of which at least one outer layer surface was comprised of a peelable sealing material such as surlyn, EVA, etc., the inventor unexpectedly  
10 realized that he had the ingredients for an aperture forming means of utmost simplicity which could be instantly opened yet would resist accidental opening for use in a variety of containment packages. The inventor also realized that such an aperture forming means was not limited to plastics, etc., but could be made of many other materials or combinations thereof so long as they had one outer layer comprising a peelable sealing  
15 surface. This list includes, but is not limited to, films containing a foil layer, a layer with metallized surface, paper, plastic laminates, paperboards, etc.

[0006] In accordance with certain embodiments of the invention, the structure of the said aperture forming means is comprised of a member having at least one peelably sealed creased or pleated portion of the said member extending from an edge of the  
20 material being used for said product containment package. Said member is arranged opposite and is sealed to a similarly peelably sealed creased or pleated member with an edge seal extending outwardly on each side of said opposing creases or pleats. To open

said aperture forming means, the edge seals on both sides (A and B) of the peelably sealed edge members are simply grasped and pulled apart. It will be realized that a variety of combinations of creases or pleats on each opposing side will work. Multiple products may be packed.

- 5   **[0007]**        Each of the creased or pleated portions may be folded flat against its respective wall in the opposite direction of the crease or pleat in the opposite wall so as to not increase the thickness of the package. The creased or pleated portions may also be sealed to the respective walls with pressure-sensitive or other adhesion means which will not activate any other adhesive on any other package surface.
- 10   **[0008]**        The peel seal should be tough enough to withstand shipping and handling pressures, but it will be recognized that direct pulling apart exerts different and far greater direct forces on the pleats to pull them apart. It will be further recognized that very thin films, for example under 0.003" are preferable, as there will be a step in the sealing surface which must be filled by the peel seal material or adhesive.
- 15   **[0009]**        In accordance with other embodiments of the invention, a package may be provided having an unsealed pair of flaps leading to a sealed section either at a corner or at the top of the package or of other shapes, locations and configurations. The peelable seal may be configured so as to peel more easily at a given location and to create a nozzle type outlet or left straight. To open the pouch the flaps are grasped and pulled apart.
- 20   With the configured seal and outlet, the flaps will pull apart more easily in the area of the peelable seal intended to be opened than in the area where they intersect with the base seals of the flaps, and the user will know the pouch has been opened.

[0010] In the event that certain of the package seals such as edge seals are preferred to be of higher strength, they can be made of such higher strength by the following system. In multilayer films such as co-extrusions, if an easier peeling seal is required in a given package, it may be that the layer beneath the peeling seal is a layer  
5 having a higher sealing temperature. Thus, by raising the seal temperature of the seal dies on the locations requiring the tougher seals, the peel seal material would burn away, and the tougher seals beneath them would be activated. Other means of insuring that the package peels only in the intended areas are possible and within the scope of the invention.

10 [0011] Some typical heat sealable peelable adhesives might be surlyn or EVA.

[0012] The packages may use a variety of materials including plastic laminates, coextrusions and may or may not contain foil or be metallized.

[0013] The aperture forming means of the present invention may be used with the types of dispenser packages described and/or depicted in U.S. Patent Application  
15 09/271,545, filed March 18, 1999, the disclosure of which is hereby expressly incorporated herein by reference. The aperture forming means of the present invention may also be used with the types of dispenser packages described and/or depicted in U.S. Patent Application 09/717,449, filed November 20, 2000, now U.S. Patent No. 6,415,939 B1, the disclosure of which is also hereby expressly incorporated herein by reference.

20 The aperture forming means may also be used for rectangular pouch-style packages.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is perspective view of a portion of a dispenser package, showing an embodiment of an aperture forming means in accordance with the invention;

FIG. 2A is a view similar to FIG. 1 after the dispenser package has been  
5 partially opened;

FIG. 2B is a view similar to FIG. 1 after the dispenser package has been  
fully opened;

FIG. 3 is another view, similar to FIG. 1;

FIG. 4 is another view, similar to FIG. 2;

10 FIG. 5 shows another embodiment of an aperture forming means  
according to the invention, in which a peelably sealed, creased or pleated portion of a first  
member is offset from a similarly peelably sealed, creased or pleated portion of a second  
member;

FIG. 5A shows a variation of the aperture forming means of FIG. 5 in  
15 which the creased or pleated portions are folded against and optionally sealed to the  
adjacent wall surfaces;

FIG. 6 shows another embodiment of an aperture forming means  
according to the invention, in which each of two peelably sealed, creased or pleated  
portions of a first member is offset from a similarly peelably sealed, creased or pleated  
20 portion of a second member;

FIG. 7 shows another embodiment of an aperture forming means  
according to the invention, for multiple products;

FIG. 8 shows a first side of a first member for forming an aperture forming means according to the invention;

FIG. 9 shows a second side of a second member for forming an aperture forming means according to the invention;

5           FIG. 10 shows the aperture forming means created by sealing together the first member of FIG. 8 and the second member of FIG. 9;

FIG. 11 shows a view of a pouch style package with the base seals of flaps indicated;

10           FIG. 12 shows a side, cross-sectional view of the package of FIG. 11, with the unsealed flap sections indicated;

FIG. 13 shows the package of FIG. 11 with the unsealed flap sections pulled apart to unseal the seal marked A;

FIG. 14 shows an enlarged view of a portion of the package shown in FIG. 13; and

15           FIG. 15 shows an alternative embodiment, with the unsealed flap sections at a corner of the pouch.

## **DETAILED DESCRIPTION OF THE INVENTION**

[0015]       FIG. 1 is perspective view of a portion of a dispenser package, showing an embodiment of an aperture forming means in accordance with the invention. The  
20   aperture forming means is comprised of a first member 11 having at least one peelably sealed, creased or pleated portion 12. The first member 11 is arranged opposite and is

sealed to a second member 14 with a similarly peelably sealed, creased or pleated portion 15 with an edge seal, the edge seal extending outwardly on each side of said opposing creases or pleats.

5 [0016] To open the aperture forming means, the edge seals on both sides (17A and 17B) of the peelably sealed members are simply grasped and pulled apart. The peelably sealed folded portions 12 and 15 are peeled open to create an outlet aperture. The partially open configuration is shown in FIG. 2A. The fully open configuration is shown in FIG. 2A.

10 [0017] FIG. 3 is another view, similar to FIG. 1, and FIG. 4 is another view, similar to FIG. 2.

[0018] FIG. 5 shows another embodiment of an aperture forming means according to the invention, in which a peelably sealed, creased or pleated portion 22 of a first member 21 is offset from a similarly peelably sealed, creased or pleated portion 25 of a second member 24.

15 [0019] As shown in FIG 5A, the creased or pleated portions 22 and 25 may be folded flat against the respective walls. As illustrated, the creased or pleated portion 22 may be folded in a direction that is opposite to the direction in which the creased or pleated portion 25 is folded. This assists in keeping the overall thickness of the package minimized. In addition, as indicated by seals 23 and 26, the creased or pleated portion 22  
20 may be sealed by seal 23 to first member 21, and the creased or pleated portion 25 may be sealed by 26 to second member 24. The seals 23 and 26 may be accomplished by pressure-sensitive or other adhesion means which will not activate any other adhesive on



any other package surface.

**[0020]** FIG. 6 shows another embodiment of an aperture forming means according to the invention, in which each of two peelably sealed, creased or pleated portions 32A and 32B of a first member 31 is offset from a similarly peelably sealed, creased or pleated portion 35 of a second member 34.

**[0021]** FIG. 7 shows another embodiment of an aperture forming means according to the invention, for multiple products. A first member 41 has two peelably sealed, creased or pleated portions 42A and 42B arranged opposite from two peelably sealed, creased or pleated portions 45A and 45B of a second member 44. A dividing seal 48 separates different compartments of the dispensing package.

**[0022]** FIG. 8 shows a first side of a first member 51 for forming an aperture forming means according to the invention. FIG. 9 shows a second side of a second member 54 for forming an aperture forming means according to the invention. FIG. 10 shows the aperture forming means created by sealing together the first member 51 of FIG. 8 and the second member 54 of FIG. 9.

**[0023]** Another type of pouch-style package incorporating peel seals is shown in FIG. 11. The package has a first member or film 51 and a second member or film 52. The first member 51 and second member 52 are sealed together in a first area by base seals 53 and in a second area by a peelable seal 54. In this embodiment, the first and second members each comprises a flap 55, 56. To open the package of FIG. 11, the unsealed flap portions 55, 56 as shown in FIG. 12 are pulled apart. The peel seal 54 marked A is thereby pulled away, as shown in FIGS. 13 and 14. An outlet opening 57 is

thereby created, as shown in FIG. 14.

**[0024]** FIG. 15 shows an alternative embodiment, with similar parts having similar reference numerals. In the embodiment of FIG. 15, the unsealed flap portion, peel seal A, and the outlet opening are located at a corner of the pouch.

5 **[0025]** Other variations of the invention are possible within the scope of the claims.